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A series of tables compiled by the Student Counseling Service in order to find out how Miami freshmen compare with national norms, and, further, to find out if there is any evidence that the quality of entering classes is improving or decreasing as compared with the freshman classes of 1956, 1957, and 1958. All summaries are based upon the results of the freshman testing programs for the fall semesters 1956 through 1959.

Conclusions indicated that the freshman class entering in 1959 was relatively able, reflecting a steady improvement in comparison with the previous classes.

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8105

REVIEW OF THE FRESHMAN TEST RESULTS
1959-1960

Institutional Research Service
Miami University

This summary of the scores earned by our entering freshmen on the test battery administered by the Student Counseling Service is designed to answer two fundamental questions:

1) How do our entering students this year compare to the norm groups used in the nation wide standardization of these tests? Did this year's freshman group score better than, worse than or about the same as one would expect on the basis of national norms?

2) How do the entering freshmen this year compare with the freshman classes of 1956, 1957 and 1958 with reference to their scores on these tests? Is there any evidence for the generalization either that the quality of our entering freshman classes is improving or worsening?

Analyses germane to each of these questions were conducted for the University as a whole and for each of the undergraduate divisions. (The School of Applied Science is not represented because only two freshman students were enrolled in this particular division.)

THE STUDENTS UNDER CONSIDERATION

All summaries are based upon the results of the Freshman Testing Programs for the years 1956-1959. Only students actually in residence during the Fall semester of each year are included in the samples. Transfer students who are classified as freshmen are also included, whereas those classified otherwise are excluded from the samples.

The total number of freshmen included in the current analyses (1959-1960) was 2364. The breakdown by division is as follows:

Arts and Science	--	1013 students	(582 males and 431 females)
Business	--	493 students	(404 males and 89 females)
Education	--	763 students	(153 males and 610 females)
Fine Arts	--	95 students	(54 males and 41 females)

Total for the University -- 1193 males and 1171 females.

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THE TEST BATTERY

ACE

The American Council on Education Psychological Examination (1948 edition) purports to measure academic potential. Thus it comes closest to what is ordinarily thought of as a "general intelligence" test. A student's score on the ACE tells us something about his capability for academic performance but it does not indicate anything about his motivational or drive level. This accounts for the fact that some students with high ACE scores do less well, scholastically, than others who earn lower ACE scores.

This test yields three scores:

1. ACE Total - an overall appraisal of scholastic aptitude.
2. ACE Linguistic - a measure of ability to handle verbal concepts.
3. ACE Quantitative - a measure of ability to handle non-verbal (primarily arithmetic and spatial) concepts.

English Achievement

The Cooperative English Test (Form Y) purports to measure proficiency or current knowledge in the verbal area. Scores on this test reveal how much a student has learned about communication and reading skills during the years prior to his enrollment as a freshman. Thus it measures the effectiveness with which a student has utilized the kind of ability measured by the ACE Linguistic subtest.

The English Achievement test yields four primary scores:

1. Total English - a composite of all of the subscores on this test.
2. Mechanics - knowledge of grammar, punctuation, capitalization and spelling.
3. Effectiveness - knowledge of good usage, diction and arrangement.
4. Reading - an indication of reading speed and comprehension based upon the following three subscales (each of which also yields a score):

    a. Vocabulary - knowledge about word meanings.
    b. Reading Speed - rapidity of reading and comprehension
    c. Reading Level - a measure of reading efficiency at the speed set in the "Speed" subscale.

Mathematics Achievement

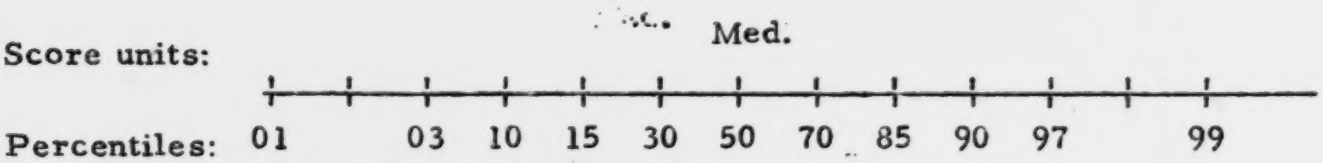
The mathematics section of the Cooperative General Achievement Test (Form P) again reflects current knowledge or proficiency. This test yields a single score based upon knowledge of arithmetic (weighted 2/5ths), algebra (1/5th), geometry (1/5th), and higher mathematics (1/5th).

FORMAT OF THE SUMMARY

The frame of reference for interpreting the tests in our battery is "percentile rank". A given percentile tells us the percentage of cases in the national standardization group at or below the corresponding test score. Thus, if a score of 112 converts to the 61st percentile, this means that 61 percent of the standardization group earned scores of 112 or lower whereas 39 percent earned scores above 112.

The average (median) percentile rank for all of these tests is, of course, the 50th percentile. If Miami University's median is below the 50th percentile on any of the tests, our freshmen performed less well than did the standardization group. Conversely, if Miami's median is above the 50th percentile, our freshmen performed better than the standardization group.

Percentiles have a unique property affecting their interpretation. They are not spread equidistantly throughout the range of test scores. The approximate spacing of percentiles along a score continuum is shown below.



Note that the percentiles are bunched together about the middle of the score distribution. The distance in terms of score units between the 30th and 50th percentiles is equivalent to the distance between the 90th and 97th percentiles, The implication of this, of course, is that a difference of ten percentile points, for example, is much more meaningful at the ends of the distribution than near the middle of the distribution. Thus the difference between the 50th percentile and the 55th percentile is not as significant as the difference between the 55th percentile and the 60th percentile. The further away from the median one moves, the more important are small percentile differences.

The ensuing summaries are arranged by test. The scores earned by the 1959-1960 freshmen are summarized graphically by decile (a unit consisting of ten percentile points). Thus, if Miami freshmen conformed exactly to national norms, each of these graphs would show a horizontal line with 10% of our students scoring at each decile.

The median percentile ranks earned by subgroups of our freshmen separated according to division and sex for the years 1956-1959 are summarized in the tables following each set of graphs. (The computations for years prior to the present one were made by the Student Counseling Service.)

I. THE ACE

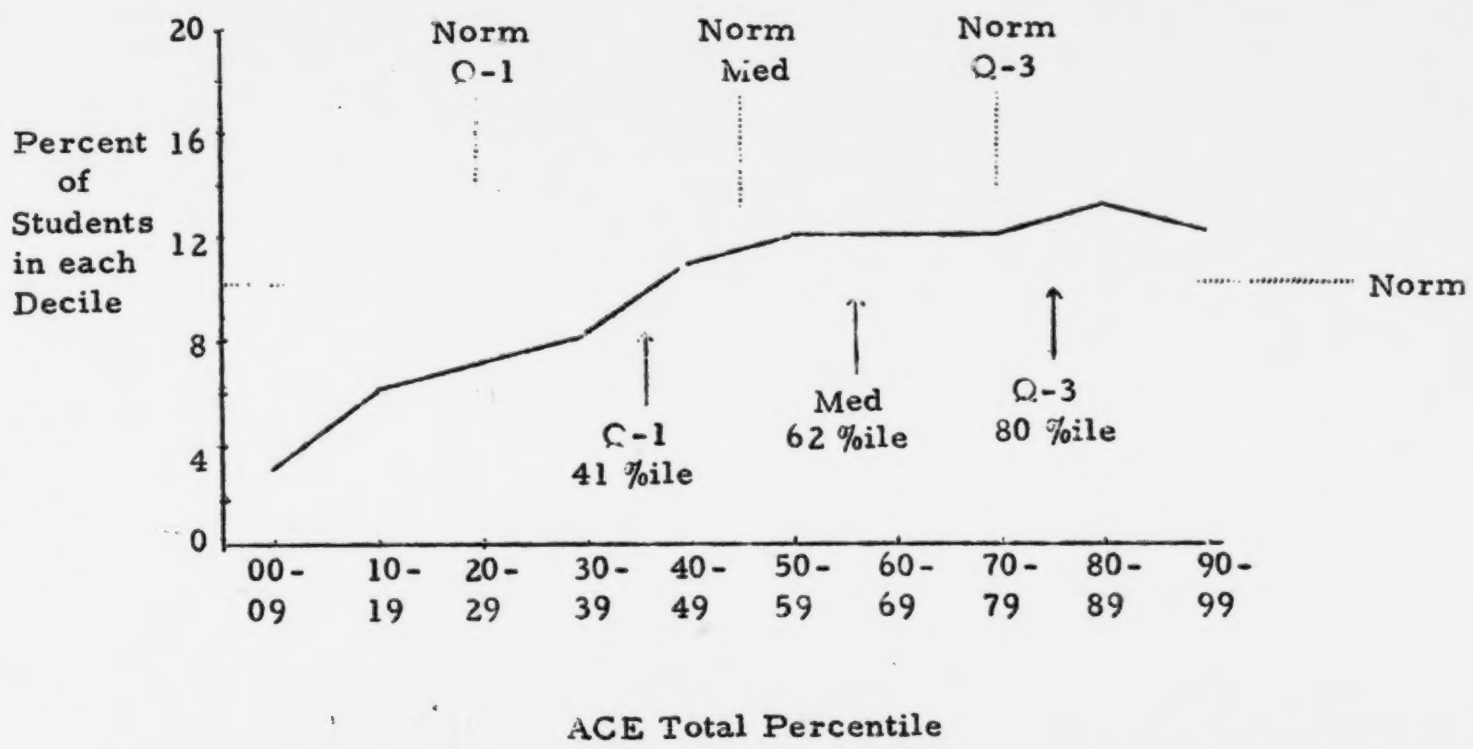
ACE Total Score

The 1959-1960 Freshman Class

The performance of the current group of freshmen without regard for divisional enrollment or sex is shown graphically in Figure 1. This Figure is to be read as follows: 3% of the freshman class scored in the first decile (00 - 09%ile); 6% scored in the second decile (10 - 19%ile) etc.

Normative data are shown in dotted lines. The horizontal norm line indicates that ten percent of the standardization group scored in each decile. The vertical norm lines indicate the expected locations of the twenty-fifth percentile (Q-1), the median or fiftieth percentile (Med), and the seventy-fifth percentile (Q-3). The obtained values for Q-1, Med and Q-3 are also shown in this Figure.

Figure 1. Summary of ACE Total Scores for all Miami Freshmen (1959-1960)



The 1959-1960 freshman group performed very well on the ACE. Their median is at the 62%ile. Thus the middle-scoring freshman earned a higher score on this test than did sixty-two per-cent of the norms group. Furthermore, the lowest scoring twenty-five percent of the Miami freshmen matched or exceeded the scores of the bottom 41% of the standardization group, whereas the highest scoring quarter of our freshman class matched or exceeded the scores of the upper 20% of the standardization group.

Comparison by Year.

The median ACE Total percentiles for each freshman class during the past four years are summarized in Table 1. This Table is to be read as follows: The median score earned by the 1959-1960 Arts and Science freshmen corresponded to the 68%ile for the norms group. This compares with median percentile equivalents of 66, 63, and 63 for each of the preceding years. The data for Arts and Science are presented also by sex.

Similar median summaries appear for each division and for the entire University.

Table 1
Median Percentiles on ACE Total By School and By Year

	Year			
	59-60	58-59	57-58	56-57
Arts & Science	68	66	63	63
Men	67	65	61	60
Women	72	67	65	70
Business	57	50	52	46
Men	59	50	52	45
Women	52	50	52	30
Education	55	52	48	49
Men	48	33	32	36
Women	57	57	52	51
Fine Arts	66	59	58	56
Men	63	55	57	57
Women	72	62	58	55
Miami University	62	59	56	54
Men	63	59	56	51
Women	60	60	57	55

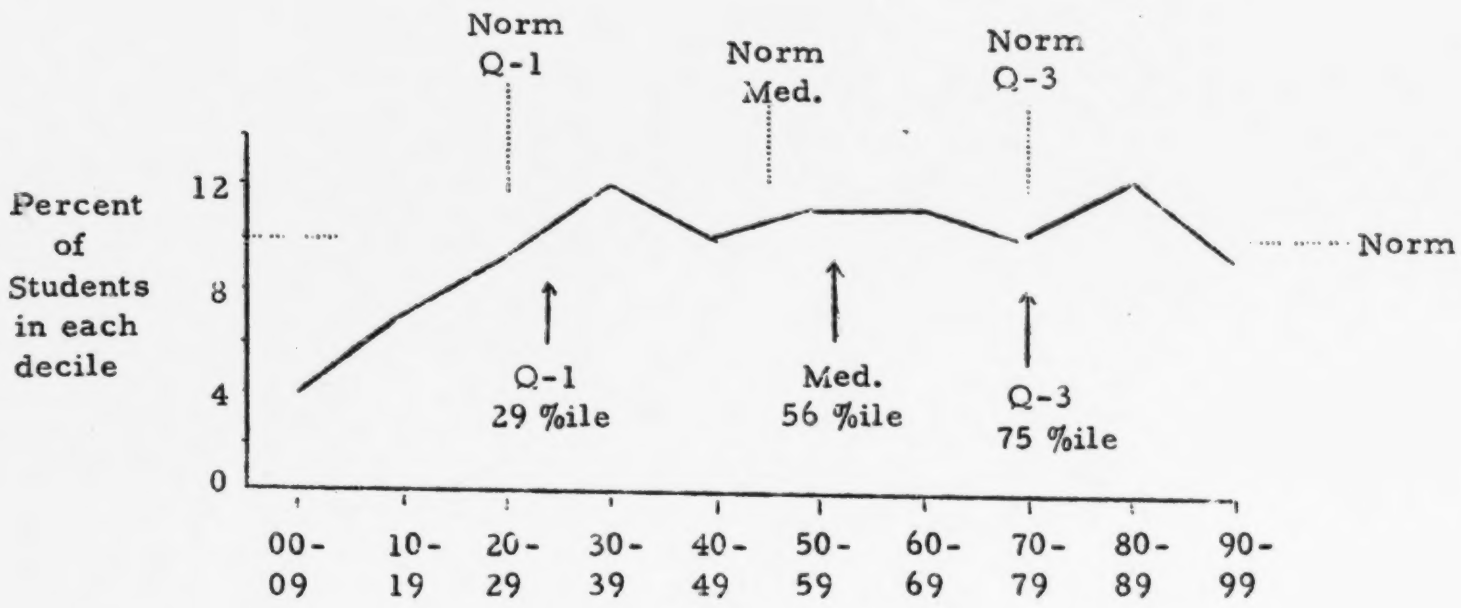
These data present an encouraging picture. The quality (as measured by ACE Total Score) of our freshman classes has been improving steadily during the past several years.

ACE Linguistic Score

This score reflects ability to handle verbal concepts. It is one of the two subscores contributing to the ACE Total.

The 1959-1960 Freshman Class.

Figure 2. Summary of ACE Linguistic Scores for all Miami Freshmen (1959-1960)



The current freshman group performed about as well on this subtest as one would expect on the basis of national norms. The Miami median is slightly elevated due to a slightly lower number of students in each of the bottom deciles. We have the proportion of students in the upper deciles that one would expect from perusal of the national norms.

Comparison by Year.

Table 2

Median Percentiles on ACE - Linguistic By School and By Year

	Year			
	59-60	58-59	57-58	56-57
Arts & Science	63	61	60	58
Men	55	59	54	50
Women	69	68	66	71
Business	48	44	44	40
Men	48	42	43	37
Women	48	46	49	43
Education	49	49	45	48
Men	41	30	33	32
Women	53	54	49	51
Fine Arts	61	51	51	47
Men	53	49	44	44
Women	73	64	61	64
Miami University	56	54	51	49
Men	53	49	47	42
Women	57	59	56	47

Improvement in the quality of our students as measured by the ACE Linguistic subtest was most marked in the School of Fine Arts. The School of Education this year enrolled better men (but not better women) than it had in the past. The quality of entering freshmen in Arts and Science and Business has remained approximately constant for the past two or three years.

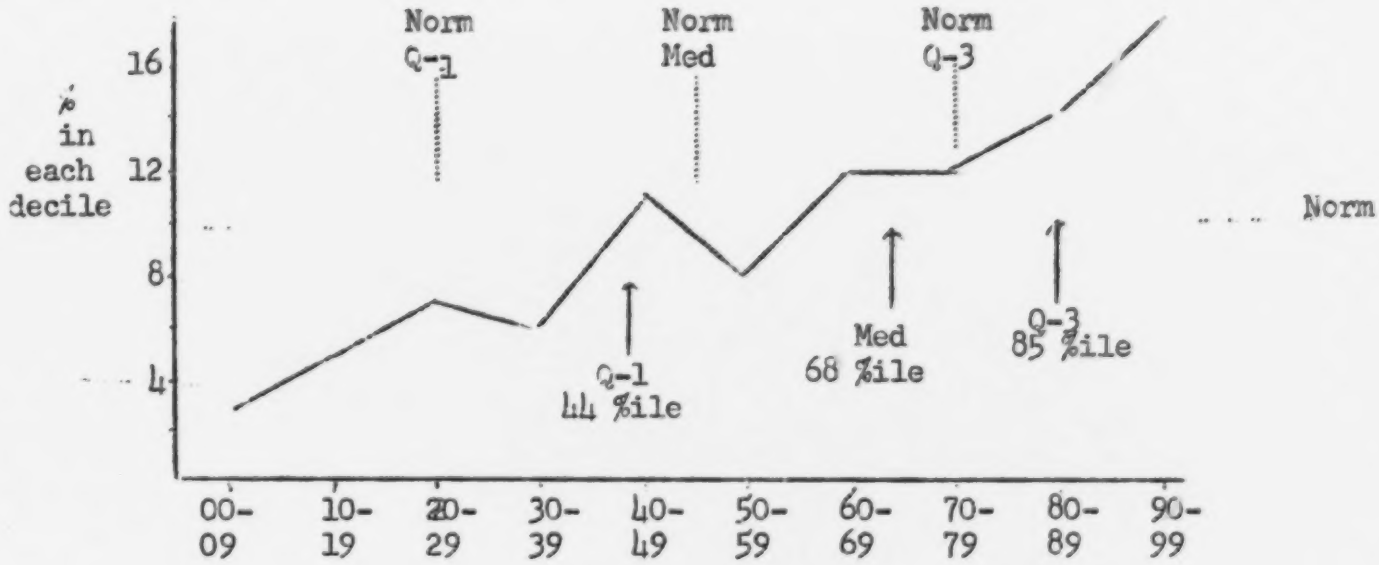
The Miami data reflect the usual finding that women are more facile on linguistic tests than are men.

ACE Quantitative

This score reflects ability to handle arithmetic and spatial concepts.

The 1959-1960 Freshman Class.

Figure 3. Summary of ACE Quantitative Scores for all Miami Freshmen (1959-1960)



The performance of this year's freshman class on the ACE Quantitative subtest was obviously quite superior.

Comparison by Year.

Table 3
Median Percentiles on ACE - Quantitative by School and by Year

	Year			
	59-60	58-59	57-58	56-57
Arts & Science	70	71	66	65
Men	74	74	71	67
Women	64	64	63	64
Business	68	62	62	57
Men	71	64	64	59
Women	58	52	56	56
Education	61	55	52	49
Men	62	52	45	52
Women	61	56	53	49
Fine Arts	69	65	53	59
Men	73	67	74	69
Women	63	56	44	54
Miami University	68	64	61	57
Men	74	71	65	68
Women	59	60	56	55

Annual improvement in the quality of performance on this subtest is marked for several of the divisions. The fact that the Arts and Science group did not evidence such improvement during the past two years probably reflects the fact that this group leaves little room for demonstrating such improvement.

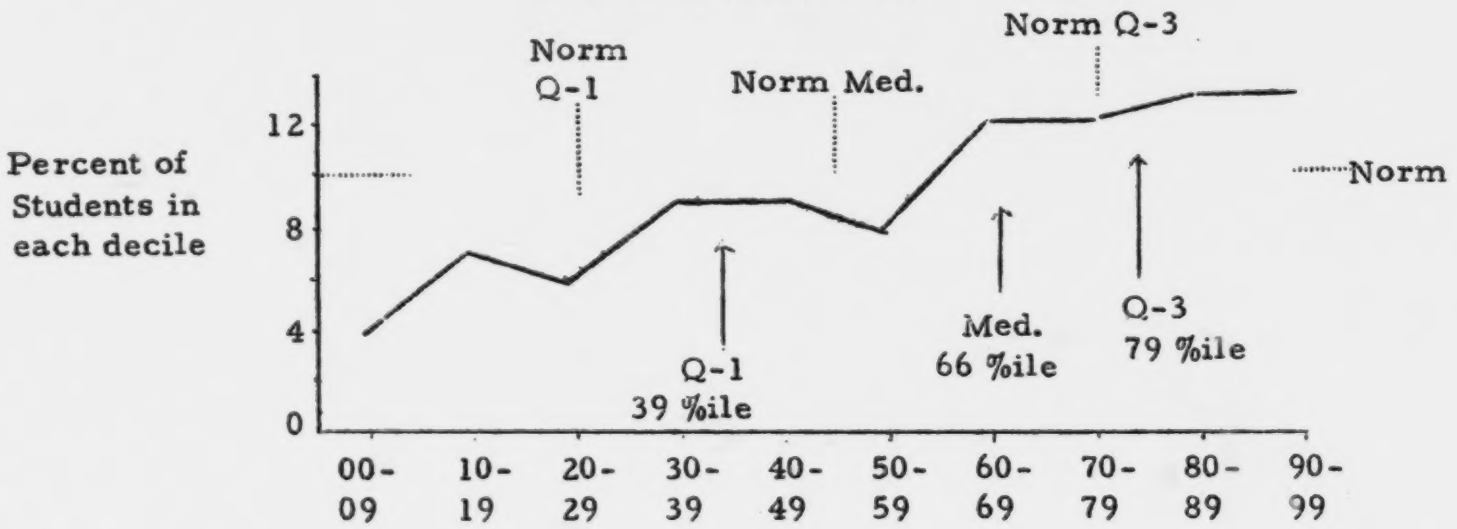
The Miami data in general reflect the usual finding that men tend to score higher than women on this kind of test.

II. MATHEMATICS PROFICIENCY

The 1959-1960 Freshmen.

The summary of ACE Quantitative scores indicates that we have a group of freshmen who are quite capable of dealing with non-verbal concepts. Their performance on the Mathematics Achievement Test (measuring proficiency rather than ability) is summarized in Figure 4.

Figure 4 - Summary of Mathematics Achievement Scores for all Miami Freshmen (1959-1960)



Our students came to us this year with a reasonably good background in mathematics. We are not laden disproportionately with freshmen who are deficient in this area (the obtained Q-1 is at the 39 %ile) and the median performance is quite high. We would, no doubt, be happier with a higher proportion of freshmen in the upper percentiles, but we at least have enrolled our share of students who are proficient in mathematics.

Comparison by Year.

The mathematics background of our freshmen has been improving steadily during the past four years. The recent increase in emphasis upon the study of mathematics in the secondary schools is reflected in the comparative data abtained since 1957. (See Table 4)

Table 4

Median Percentiles on Mathematics Proficiency by School and by Sex

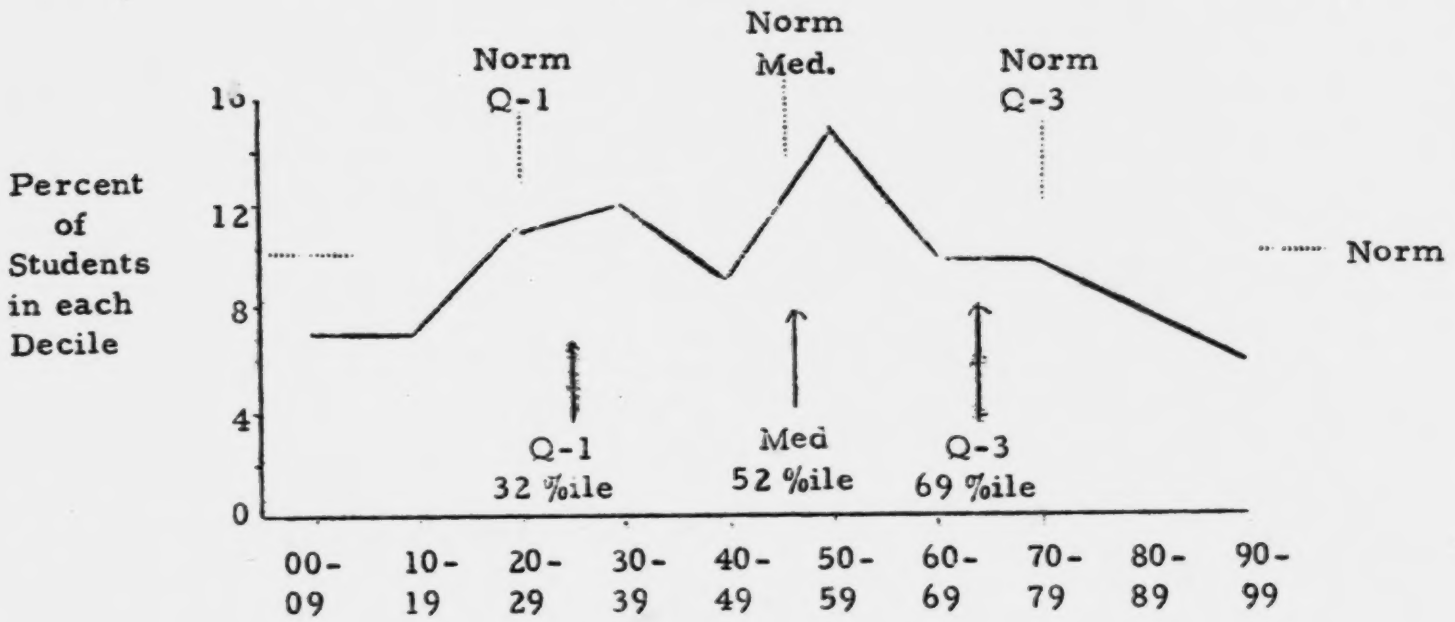
		Year			
		59-60	58-59	57-58	56-57
Arts & Science		69	65	58	56
	Men	76	74	69	61
	Women	61	53	44	45
Business		64	53	48	44
	Men	68	57	53	45
	Women	48	38	36	35
Education		49	40	32	35
	Men	57	38	32	37
	Women	48	42	32	34
Fine Arts		71	57	50	51
	Men	80	61	63	61
	Women	45	46	21	23
Miami University		66	53	47	44
	Men	72	65	58	56
	Women	49	46	37	36

III. ENGLISH PRCFICIENCY

Total English Score

The 1959-1960 Freshmen.

Figure 5. Summary of Total English Scores for All Miami Freshmen (1959-1960)



The background in English of our freshmen this year shows an interesting pattern. This group contains proportionately fewer students than one would expect (on the basis of national norms) at both the low and the high achievement levels.

Comparison by Year.

The pattern of continual improvement in the median test performance of our incoming students from year to year is again evident in Table 5. The improvement during the past four years in the English proficiency of our freshman men is just short of startling.

Table 5
Median Percentiles on Total English -- By School and By Year

		Year			
		59-60	58-59	57-58	56-57
Arts & Science		55	54	45	47
	Men	49	46	37	38
	Women	69	62	57	60
Business		42	34	33	26
	Men	38	30	30	23
	Women	54	46	44	47
Education		51	46	38	42
	Men	33	17	12	15
	Women	54	50	44	46
Fine Arts		54	42	34	32
	Men	42	30	29	26
	Women	65	62	42	22
Miami University		52	46	40	40
	Men	44	34	31	28
	Women	56	54	48	52

Diagnostic Analysis of the English Subtests

The Total English score is a composite of six subtest scores. The median percentiles of the 1959-1960 freshman class by division and by sex are summarized for each subtest in Table 6.

It is apparent from these data that students in most of the divisions can be expected to experience reading difficulties. Their reading comprehension generally is satisfactory, but they read slowly. In addition, our men have come to us with a marked deficiency in the mechanics of communication. The huge spread of scores on this subscale as a function of sex is unusual.

Table 6
Median Percentiles on Subtests of the English Test by School
1959-1960

School	Subtests					
	Mechanics	Effect.	Vocab.	Readg. Speed	Readg. Level	Total Readg.
Arts & Science	53	64	53	49	54	49
Men	37	59	47	46	53	46
Women	71	72	59	55	56	59
Business	33	51	38	36	46	39
Men	29	49	38	36	46	39
Women	66	59	38	36	47	41
Education	54	55	41	36	47	41
Men	23	38	35	33	44	36
Women	61	61	51	38	48	43
Fine Arts	54	60	53	39	52	47
Men	37	48	48	35	51	44
Women	70	68	59	51	57	48
Miami University	49	61	47	44	51	45
Men	33	58	44	41	51	44
Women	64	62	48	50	51	45

IV. SUMMARY

The following generalizations about the 1959-1960 freshman class seem to be of particular interest.

1. This is a relatively capable group of students. Only nine percent of this group scored in the lower two deciles on the ACE.

2. Their capability is more pronounced in the quantitative than in the linguistic area. Even in the latter area, however, we have a group that is not worse than one would expect in a university pursuing a non-selective admissions policy.

3. Our freshmen this year have come to us with a reasonably good background in mathematics.

4. Their background in English is not as weak as it has been in past years. A disproportionately high number of students are, however, deficient in reading speed and mechanics of expression. These deficiencies will cause them difficulty not only in Freshman Composition and Literature, but in virtually all the courses they take during the course of their college careers unless it can be remediated.